DRAFT Recommendation for Updating the Readmissions Reduction Incentive Program for Rate Year 2018

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This document contains the draft staff recommendations for updating the Maryland Hospital Readmissions Reduction Incentive Program. Please submit comments on this draft to the Commission by Monday April 4th, 2016, via hard copy mail or email to Dianne.feeney@maryland.gov.

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LIST OF ABBREVIATIONS

APR-DRG   All-patient refined diagnosis-related group

ARR   Admission-Readmission Revenue Program

CMMI   Center for Medicare and Medicaid Innovation

CMS   Centers for Medicare & Medicaid Services

CY   Calendar year

ED   Emergency department

FFS   Fee-for-Service

FFY   Federal fiscal year

FY   Fiscal year

HRRP   Hospital Readmissions Reduction Program

HSCRC   Health Services Cost Review Commission

MHAC   Maryland Hospital-Acquired Conditions Program

PPC   Potentially Avoidable Complications

RRIP   Readmissions Reduction Incentive Program

RSSP   Readmission Shared Savings Program

RY   Rate year

SES/D   Socio-economic and demographic

YTD   Year-to-date

INTRODUCTION

The United States healthcare system currently experiences an unacceptably high rate of preventable hospital readmissions. These excessive readmissions generate considerable unnecessary costs and substandard care quality for patients. A readmission is defined as an admission to a hospital within a specified time period after a discharge from the same or another hospital. Historically, Maryland's readmission rates have been high compared with the national levels for Medicare. Under authority of the Affordable Care Act, the Centers for Medicare & Medicaid Services (CMS) established its Medicare Hospital Readmissions Reduction Program (HRRP) in federal fiscal year (FFY) 2013. [1] Because of its long-standing Medicare waiver for its all-payer hospital rate-setting system, special considerations were given to Maryland, including exemption from the federal HRRP. Instead, the Maryland Health Services Cost Review Commission (HSCRC or Commission) implements various Maryland-specific quality-based payment programs, which provide incentives for hospitals to improve their quality performance over time.

Maryland entered into a new All-Payer Model Agreement with CMS on January 1, 2014. One of the requirements under this new agreement is for Maryland's hospital readmission rate to be equal to or below the national Medicare readmission rate by calendar year (CY) 2018. Maryland must also make scheduled, annual progress toward this goal. In order to meet this requirement, the HSCRC established the Readmissions Reduction Incentive Program (RRIP) in April 2014. The HSCRC made some further adjustments to the program in the following year, which are discussed in the background section of this report.

The purpose of this report is to provide background information on the RRIP program and to make recommendations for updating the state rate year (RY) 2018 methodology and readmissions reduction targets. The RY 2017 approved recommendation stated that staff would assess the impact of admission reductions, sociodemographic factors, and all payer versus Medicare readmission trends and make adjustments to the rewards or penalties if necessary. This draft recommendation details these analyses, as well as analyses examining the relationship between the base period readmission rate and improvement rates since hospitals with low readmission rates may have more difficulty meeting the minimum improvement target. Based on these analyses, staff provides options for moderating adjustments in light of recent analysis for RY2017 adjustments, and a recommendation for RY 2018 to reduce the minimum improvement target for hospitals with lower base year readmission rates. Staff is also working on refining and broadening the existing Readmission Shared Savings Program (RSSP) policy for RY2017, which is currently based on inpatient readmission rates. Staff will be evaluating options to include prevention quality indicators and Sepsis admissions in the shared savings program, as well as the program's impact in consonance with RY 2017 update factor analyses. The final recommendation for the RRIP may require alignment with any revisions to what is currently the RSSP policy to estimate impact of these programs overall in tandem.

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[1] 42 CFR 412.152

BACKGROUND

Federal Readmissions Program

The Affordable Care Act established the Medicare HRRP[2], which requires CMS to reduce payments to inpatient prospective payment system hospitals with excess readmissions for patients in traditional Medicare.[3] The program started in FFY 2013 and applies to most acute care hospitals.[4] Under this program, hospitals with readmission rates that exceed the national average are penalized by a reduction in payments across all of their Medicare admissions. CMS will adjust for certain demographic and clinical characteristics of both a hospital's readmitted patients and the hospital's overall patient population. CMS will then calculate a rate of excess readmissions; the greater a hospital's rate of excess readmissions, the higher the penalty. Each year, CMS publishes each hospital's penalty for the upcoming year online.

Penalties under the HRRP were first imposed in FFY 2013, during which the maximum penalty was one percent of the hospital's base inpatient claims. The maximum penalty increased to two percent for FFY 2014 and three percent for FFY 2015 and beyond. CMS uses three years of previous data to calculate each hospital's readmission rate. For penalties in FFYs 2013 and 2014, CMS focused on readmissions occurring after initial hospitalizations for three conditions: heart attack, heart failure, and pneumonia. For penalties in FFY 2015, CMS included two additional conditions: chronic obstructive pulmonary disease and elective hip or knee replacement. In the future, CMS intends to continue with these conditions, and will add the assessment of performance following initial diagnosis of coronary artery bypass graft surgery to the list for FFY 2017.

Overview of the Maryland RRIP Program

As discussed in the introduction section of this report, Maryland is exempt from the federal Medicare HRRP. Instead, the Affordable Care Act requires Maryland to have a similar program and achieve the same or better results in costs and outcomes in order to maintain this exemption. The Commission made an initial attempt to encourage reductions in unnecessary readmissions when it created the Admission-Readmission Revenue (ARR) program in RY 2012. The ARR program, which was adopted by most Maryland hospitals, established "charge per episode" constraints on hospital revenue, providing strong financial incentives to reduce hospital readmissions. The ARR program was replaced with global budgets in RY 2014.

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[2] For more information on HRRP, see https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html.

[3] 42 CFR 412.150(a)

[4] Boccuti, C., & Casillas, G. (January 2015). Aiming for fewer hospital u-turns: The Medicare hospital readmission reduction program. Retrieved from http://kff.org/medicare/issue-brief/aiming-for-fewer-hospital-u-turns-the-medicare-hospital-readmission-reduction-program/

In May 2013, the Commission also approved the RSSP policy for RY 2014 to achieve savings that would be approximately equal to those that would have been expected from the federal Medicare HRRP. Based on hospital achievement levels in reducing readmissions, the RSSP decreased hospital inpatient revenues on average by 0.3 percent of state inpatient revenue in its first year.

The new All-Payer Model Agreement further established specific targets for reductions in Maryland's Medicare readmission rates by CY 2018. In April 2014, the Commission approved a new readmissions program—the RRIP—to further bolster the incentives to reduce unnecessary readmissions. The RRIP provided a positive increase of 0.5 percent of inpatient revenues for hospitals that were able to meet or exceed a pre-determined reduction target for readmissions in CY 2014 relative to CY 2013. HSCRC did not impose penalties in the first year of the RRIP program. For the RSSP, the revenue reduction for this second year was, on average, 0.4 percent of inpatient revenue. Unlike the RSSP, the RRIP focused on the improvements achieved by the hospitals in their readmission rates rather than on their readmission attainment levels. The initial guiding principles of the RRIP included:

- The measurements used for performance linked with payment must include all patients, regardless of payer.
- The measurements must be fair to hospitals.
- Annual targets must be established to reasonably support the overall goal of meeting or outperforming the national Medicare readmission rate by CY 2018.
- The measurements used should be consistent with the CMS readmissions measure.
- The approach must include the ability to track progress.

The key methodology of the initial program included the components below.

- Readmission definition-Case-mix adjusted readmissions are calculated by estimating readmissions for each hospital based on statewide averages per all-patient refined diagnosis-related group (APR-DRG) severity of illness.
- Broad patient inclusion-For greater impact and potential for reaching the statewide target, the measure included all payers and any acute hospital readmission in the state.
- Patient exclusion adjustments-To enhance the fairness of the methodology, planned admissions (using the CMS algorithms[5]) and maternal deliveries were excluded from the readmission counts.
- Positive incentive-Hospitals that reached or exceeded the target earned the incentive.

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[5] For more information on planned readmissions for each specific measure (e.g. hospital-wide all cause readmissions), the process is described in the corresponding measure updates and specifications reports located at: http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/Measure-Methodology.html.

- Performance measurement consistency across hospitals- A uniform achievement benchmark for all hospitals was established for the first year, and performance is measured cumulatively in subsequent years.
- Monitoring for unintended consequences- Observation room and emergency department (ED) visits occurring within 30 days of an inpatient stay were monitored; adjustments to the positive incentive were made if emergency department observation room cases within 30 days increased faster than the other observations in a given hospital.
- Reduction target- The readmissions reduction target for the first year of the program was set at 6.76 percent for all payers. This target was based on the excess levels of Medicare readmissions in Maryland in RY 2013 (8.78 percent), divided by five (representing each year of the Model Agreement performance period), plus an estimate of the reduction in Medicare readmission rates that would be achieved nationally (5.0 percent).

The RRIP methodology was updated for rate year (RY) 2017 to include both higher potential rewards for hospitals that achieved or exceeded the readmission reduction targets and payment reductions to hospitals that did not achieve the required readmission reductions. Rewards and payment reductions were allocated along a scale commensurate with hospital performance levels. The readmission rate reduction target for RY 2017 was set at 9.30 percent, comparing CY 2015 with CY 2013 performance, which was based on a 1.34 percent decline in the national Medicare readmission rates in CY 2015. The RY 2017 policy also used an updated version of the CMS planned admission algorithm and removed newborn APR-DRGs from the calculations.

ASSESSMENT

In order to refine the methodology and develop the targets for RY 2018, the HSCRC solicited input from the Performance Measurement Workgroup.[6] The Workgroup discussed pertinent issues and potential changes to Commission policy for RY 2018 that may be necessary to enhance the HSCRC's ability to continue to improve the quality of care, reduce costs related to readmissions, and continue to meet the waiver targets established by the Center for Medicare and Medicaid Innovation (CMMI). In its January meeting, the Workgroup reviewed data related to 1) Maryland's performance to date, 2) the target calculation methodology, and 3) and analyses of other considerations for the readmission rate.

Maryland's Performance to Date

Medicare Waiver Test Performance

With the onset of the All-Payer Model Agreement, HSCRC and CMMI staff worked to refine the Medicare readmission measure specifications used to determine contract compliance. These changes narrowed the gap between the Maryland and national Medicare readmission rates to 7.9

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[6] For more information on the Performance Measurement Workgroup, see http://www.hscrc.state.md.us/hscrc-workgroup-performance-measurement.cfm.

percent for CY 2013, the base measurement period for the model. Otherwise stated, with these revised definitions, Maryland's Medicare readmission rate was 16.6 percent compared with the national rate of 15.4 percent for CY 2013. Below are the specification changes made to allow accurate comparison of Maryland's Medicare readmission rates with those of the nation.

- Requiring a 30-day enrollment period in fee-for-service (FFS) Medicare after hospitalization to fully capture all readmissions.
- Removing planned readmissions using the CMS planned admission logic for consistency with the CMS readmission measures.
- Excluding specially-licensed rehabilitation and psychiatric beds from Maryland rates due to inability to include these beds in national estimates due to data limitations. In contrast, HSCRC includes psych and rehab readmissions in the all-payer readmission measure used for payment policy.
- Refining the transfer logic to be consistent with other CMS readmission measures.
- Changing the underlying data source to ensure clean data and inclusion of all appropriate Medicare FFS claims (e.g., adjusting the method for calculating claims dates, and including claims for patients with negative payment amounts).

Using the revised final measurement methodology, Maryland performed better than the nation in reducing readmission rates in both CY 2014 and CY 2015. Figures 1 and 2 below compare the cumulative readmission rate changes by month between Maryland and the national Medicare program. Figure 1 shows the changes between CY 2013 and 2014, and Figure 2 shows changes between CY 2014 and CY 2015.

For the month of January 2014 in Figure 1, Maryland experienced a 2.18 percent increase compared with January 2013. Throughout the year, this trend shifted, with Maryland achieving a 0.56 percent decrease in readmissions between January and August 2014, compared with the same time period in CY 2013. For CY 2014, the readmission rates for Maryland declined by 0.85 percent in comparison to January to December 2013. In contrast, the national readmission rate, represented by the blue line, increased by 0.71 percent during the same period.

Figure 1. Cumulative Readmission Rate Change by Month, CY 2014-2013, Maryland vs. National Medicare Readmissions
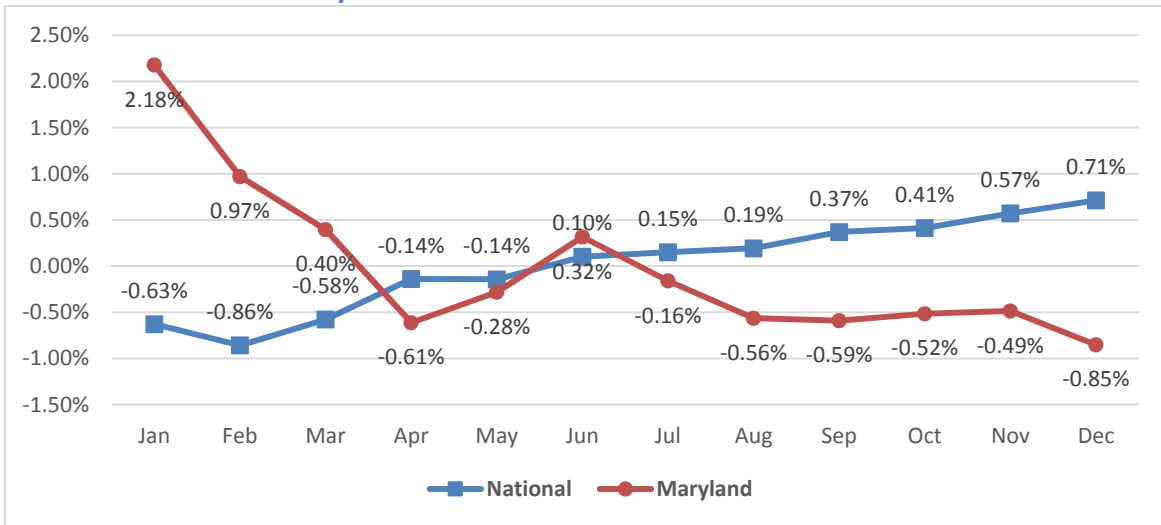
Figure 2 presents preliminary data for the first three quarters of CY 2015, indicating that Maryland has experienced a 3 percent reduction in Medicare readmission rate compared with CY 2014 and exceeded the national decrease in Medicare readmission rate of 0.62 percent.

Figure 2. Cumulative Readmission Rate Change by Month, CY 2015-2014, Maryland vs. National Medicare Readmissions
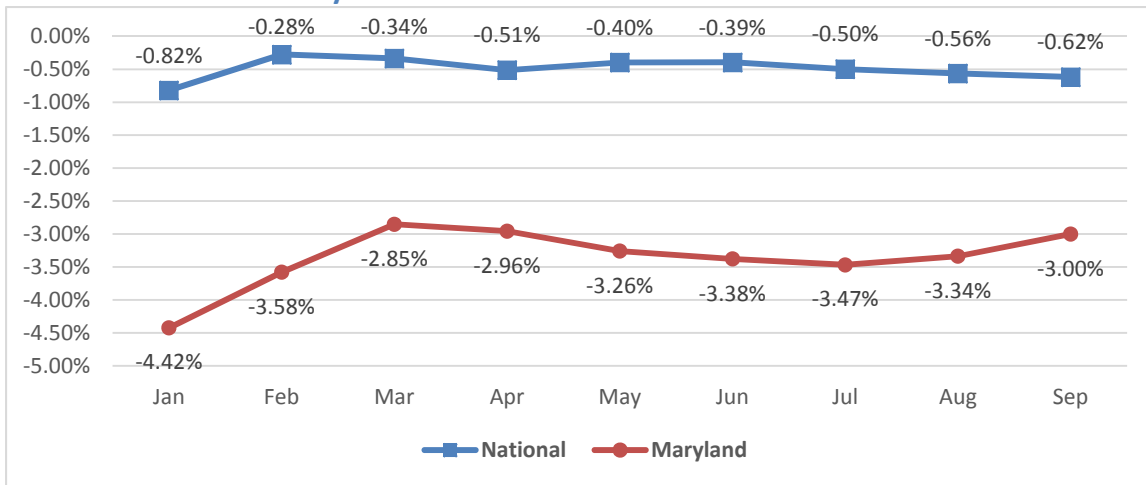
All-Payer Performance

The RRIP measures the all-payer case-mix adjusted readmission rate. The RRIP measure was refined to incorporate many of the elements of the CMS Medicare measure (i.e., planned admissions and transfer logic). See Appendix I for more details on the RRIP methodology.

Maryland made progress in CY 2015 towards meeting the Medicare readmission reduction contract requirement, although this may be mainly attributed to a slower than expected rate of decline in the national readmission rates. Despite this progress, the all-payer readmission rate decline has fallen short of the statewide CY 2015 cumulative target of 9.3 percent thus far. Appendix II provides hospital-level improvement rates for discharges occurring through October 2015. Overall, all-payer readmission rates declined by 7.2 percent Jan-October 2014, compared with January through October 2013, with one-third of the hospitals meeting or exceeding the 9.3 percent reduction target. Seven hospitals had an increase in their readmission rates, with the highest increase of 13 percent.

Target Calculation Methodology for Rate Year 2018

As previously stated, under the All-Payer Model Agreement, Maryland is required at minimum to close 1/5 of the gap between national and Maryland readmission rates and match the national decline in Medicare readmission rates to eliminate the excessive level of readmissions by CY 2018. To achieve this goal, the HSCRC set a target to reduce readmissions by 6.76 percent for RY 2016 (CY 2014 performance compared to CY2013 base year) and by 9.3 percent for RY 2017 (CY 2015 performance compared to CY2013 base year).[7] Figure 3 below provides the historical projections used for setting the target and the actual performance observed in measurement years 2014 and 2015. In addition, it provides the cumulative change since the initiation of the Agreement. For example, in CY 2015, readmissions were reduced by 0.6 percent nationally in one year. This reduction combined with the 0.7 percent increase in CY 2014, resulted in a 0.1 percent increase in cumulative rate change since CY 2013 for Medicare.

Figure 3 also provides alternative estimates of the cumulative Medicare and all-payer targets for measurement year 2016. HSCRC staff modeled three alternatives using three different assumed rates for the estimated annual rate of change, including the current rate of change for CY2015 and the historical rate of change over the past several years. This yielded cumulative all-payer targets ranging from 9.1 to 12.7 percent, depending on the assumptions used for the Medicare national rate of change.

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[7] The RRIP reduction targets are determined by the National vs Maryland readmission gap and a projection of rate of change in the national Medicare readmission rates. For RY 2016 Medicare's national rate of readmissions was assumed to drop by 5.0 percent in CY 2014. Accordingly, the target rate of readmission reductions included in the RRIP for CY 2014 was 6.76 percent (i.e., (1.76 percent + 5.0 percent = 6.76 percent), and was applied to all payers based on stakeholder workgroup recommendations. For the CY 2015 target calculation, the remaining gap divided by 4 was 1.64 percent, and the national readmission reduction estimate was 1.3 percent. Based on HSCRC trends indicating that all payer risk-adjusted readmission rates were declining much more rapidly, 4.5 percent was added to convert the Medicare target to an all payer target.

Figure 3. Maryland and National Medicare Historical and Projected Readmission Rate Reductions Based on Varying Assumptions

Measurement Years	Base Year MD/National Readmission Rate	Assumed National Annual Rate of Change	Actual National Annual Rate of Change	Actual National Cumulative Change	MD Cumulative Medicare Rate of Target	All Payer to Medicare Readmission Rate Percent Change Difference	Cumulative All Payer Target
CY 2014	8.9%	**-5.0%**	0.7%	0.7%	-6.8%		**-6.8%**
CY 2015	7.7%	**-1.3%**	-0.6%	0.1%	-4.7%	-4.6%	**-9.3%**
CY 2016 Modeling Results:							
CY16 - Current Rate of Change	7.7%	-0.6%			-5.5%	-3.6%	-9.1%
CY16 -Lowess Model Lowest Bound	7.7%	-0.8%			-5.8%	-3.6%	-9.4%
CY 16 Long Term Historical Trend	7.7%	-1.8%			-9.2%	-3.6%	-12.7%

In establishing a cumulative readmission reduction target for the RRIP for RY 2018, it is important to strike a reasonable balance between the desire to set a target that is not unrealistically high and the need to conform to the requirements of the Model Agreement. With each passing year, underachievement in any particular year becomes increasingly hard to offset in the remaining years before CY 2018. Again, the consequence for not achieving the minimum annual reduction would be a corrective action plan and potentially the loss of the waiver from the Medicare HRRP. The consequences of not meeting the target are stated in the Model Agreement as follows:

> *If, in a given Performance Year, Regulated Maryland Hospitals, in aggregate, fail to outperform the national Readmissions Rate change by an amount equal to or greater than the cumulative difference between the Regulated Maryland Hospitals and national Readmission Rates in the base period divided by five, CMS shall follow the corrective action and/or termination provisions of the Waiver of Section 1886(q) as set forth in Section 4.c and in Section 14.*

Requiring Maryland to conform to the national Medicare HRRP would reduce our ability to design, adjust, and integrate our reimbursement policies consistently across all payers based on local input and conditions. In particular, the national program is structured as a penalty-only system based on a limited set of conditions, whereas the Commission prefers to have the flexibility to implement much broader incentive systems that reflect the full range of conditions and causes of readmissions on an all-payer basis. Given that Maryland's readmission rate is still high compared with the national rate, some Workgroup members supported a more aggressive target. Other Workgroup members felt that because Maryland is making good progress toward meeting the Model Agreement requirement, the target should be less aggressive.

Analyses of Other Considerations

Prior to the RY 2017 RRIP policy adoption, HSCRC staff conducted a number of analyses to determine whether other factors should be considered in the methodology. The Commission adopted the recommendations below in context of uncertainty around risk adjustment, the relationship between Medicare and all payer readmission rates, and the impact of reductions in overall admissions on readmission rate changes (i.e., the denominator effect) at the time the RY 2017 recommendation was developed and adopted.

1. Continue to set a minimum required reduction benchmark on an all-payer basis and re-evaluate the option to move to a Medicare-specific performance benchmark for the CY 2016 performance period.

2. Continue to assess the impact of admission reductions, socio-economic and demographic (SES/D) factors, and all-payer and Medicare readmission trends, and make adjustments to the rewards or penalties if necessary.

3. Seek additional Medicare benchmarks that can help guide efforts in Maryland. Evaluate recommendations from the Care Coordination Workgroup and request recommendations from Maryland's new quality improvement organization regarding specific areas for improvement.

To develop the RY 2018 recommendation, HSCRC staff analyzed the CY 2015 year-to-date (YTD) trends in an effort to examine the issues previously raised during the development of the RY 2017 recommendation. State-level analysis produced the following results:

- Strong correlations between the change in all-payer and Medicare readmission rates (Pearson's correlation[8] coefficient r = 0.65); this suggests that as all-payer readmission rates decline, the Medicare readmission rates also decline.
- Positive statistically significant correlation between the change in overall admissions and readmission rates (Pearson's r = 0.29); this suggests hospitals that are reducing overall admissions are also reducing their readmission rates (see Appendices III and IV).

HSCRC formed a subgroup to discuss details on SES/D and readmission rates. In addition to individual measures such as age, payer status, and race/ethnicity, the subgroup assessed the use of a geographic measure called the Area Deprivation Index (ADI). The ADI is a validated census-based measure available at the block-group (neighborhood) level, first created in 2003 based upon the 2000 census by Singh and colleagues.[9] The ADI is a factor-based index with 17 census-based indicators assessing education, income, poverty, housing costs, housing quality,

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[8] Pearson's correlation describes the strength of the linear relationship between two variables. Pearson's correlation coefficients range from -1.0 to 1.0. A coefficient of 0 indicates no relationship. A correlation of 1.0 indicates a strong positive linear relationship; as one variable increases, the other also increases. A value of -1.0 indicates a strong negative relationship, as one variable increases, the other decreases. For additional information, see: http://www2.sas.com/proceedings/sugi31/170-31.pdf
[9] For more information on the ADI, see http://www.hipxchange.org/ADI

employment, and single parent households. The ADI has been shown to be correlated with multiple health outcomes and with readmissions. In 2014-2015, the HSCRC contracted with Dr. Amy Kind, the lead author of a seminal article showing a strong relationship between ADI and Medicare readmission rates, to update the 2000 ADI based on the 2009-2013 American Community Survey using a very similar methodology as Singh.

The initial analyses, presented in Appendix V, provide evidence that hospitals with a higher proportion of patients from the most deprived areas have higher readmission rates than hospitals with a lower proportion of patients from deprived areas (Pearson correlation coefficient is 0.42). However, this relationship is not as strong once the two outlier hospitals (Bon Secours and University of Maryland Midtown hospitals, with 62 and 58 percent of patients from the highest deprived areas, respectively) are removed from the analysis. The relationship between ADI and readmission rates is a complex one and complicated statistical analyses may be needed to distinguish the hospital-level factors contributing to high readmission rates from patient-level factors, such as ADI. Furthermore, the application of socio-economic/demographic adjustments to hospital quality measures is a subject of national debate, requiring extensive discussions and stakeholder input to determine policy implications and alternative methods of controlling for SES/D factors.

Since the current RRIP policy is based on improvement rates rather than the level of readmission rates, the relationship between readmission reduction and SES/D would be more appropriate to consider and could be less complicated than adjusting readmission rates themselves. Correlation analysis does not support the assumption that hospitals with high deprivation burden experience lower improvement rates; hospitals with higher ADIs, in fact, were shown to have modestly higher rates of improvement.

The Impact of Emergency Department Observation Stays

To some extent, ED visits and observation stays can be substituted for inpatient readmissions. In the Final Recommendation for the RRIP for RY 2016, HSCRC staff acknowledged the possible confounding effects of changes in the use of ED and observation services and promised to monitor the frequency of ER visits and observation stays within 30 days after discharge. In addition, the recommendation stated that adjustments would be made in the RRIP incentive rewards to hospitals if their reductions in readmissions were accompanied by disproportionate increases in observation room stays after discharge. This adjustment was specified for observation stays only because there was less certainty regarding the extent to which ED services can substitute for inpatient stays.

Staff examined data regarding the improvement rate in readmissions by using inpatient data only and by examining inpatient data plus observation stays that were 24 hours or longer and within 30 days of an admission. Appendix VI shows that the change in readmission rates with observations stays included is slightly less than the decline in readmission rates when observation stays are excluded. For example, a hospital may have an 8.3 percent reduction in readmissions when observation room stays are considered a readmission, but a 13.0 percent decline when observation room stays are not counted as a readmission. Based on these findings,

staff is less concerned about the possibility that the decline in readmission rates was caused by increases in the use of the observation stays in CY 2015. However, staff will examine the observation visit trends for individual hospitals for the purposes of determining whether adjustments should be made to the RY 2017 RRIP rewards.

The Impact of Readmission Rates on Improvement

Due to concerns with the measurement of readmission rates, staff were not able to create a performance metric to measure whether a particular hospital has a low or high readmission rate, commonly referred as "attainment" in quality improvement. In addition to a debate on the impact of SES/D status on readmission rates and whether adjustment should be made for these factors, staff need to develop a methodology to adjust for readmissions at non-Maryland hospitals, as the current HSCRC data set provides only in-state readmissions. Furthermore, benchmarks should be set in alignment with the RRIP's objective to reduce the hospital readmission rate to match or outperform the national Medicare rate. Current benchmarks are based on the statewide readmission rate, which remain higher than the national average and may not illustrate the level of improvement required from hospitals. Based on the CMS hospital-wide risk-adjusted Medicare readmission measure, only two Maryland hospitals are statistically significantly below (outperforming) the national average readmission rates (see Appendix VII).

While the work continues to develop a methodology to compare readmission rates, staff analyzed the relationship between base year readmission rates and cumulative improvement rates. Although we did not see a strong relationship between the CY 2013 readmission rates with the CY 2013 to CY 2014 rate of change, there appears to be a stronger relationship between the CY 2013 readmission rates and the rate of change from CY 2013 to CY 2015 (Pearson's r = 0.35, Appendix VIII). This suggests that hospitals who began with greater readmission rates in CY 2013, reported larger decreases in readmission rates through the measurement period. However, this trend was not consistent when making individual hospital-level comparisons; there is large variation in performance among hospitals that began with similar readmission rates. For example, one hospital with a CY 2013 readmission rate of 10.6 percent reduced its readmission rate by 12 percent, while another hospital with a 10.9 percent readmission rate had an increase of 13 percent over the two-year period.

Due to the statewide relationship in base year and cumulative improvement rates, staff propose to adjust the minimum required readmission rate reductions based on base year readmission rates. Staff propose to keep the statewide target for hospitals with readmission rates that are higher than the statewide average, as these hospitals are more likely to have a higher burden of SES/D and would need additional resources to reduce their readmission rates. For hospitals with readmission rates that are lower than the statewide average, the minimum required readmission reductions can be reduced in proportion to the hospital's difference from state average readmission rate (Appendix IX).

The Link between Shared Savings and RRIP

As mentioned in the overview, the HSCRC shared savings program prospectively adjusts hospital rates to achieve a specified statewide savings amount. For the past several years, the shared savings adjustment for each hospital was based upon historical readmission rates. Staff will be evaluating and discussing other options for shared savings to focus attention more broadly on avoidable admissions/hospitalizations (Potentially Avoidable Utilization, or PAUs). The Commission's funding of infrastructure included in RY 2016 revenue focused on reducing PAUs more broadly than readmissions. Also, the staff is proposing to add sepsis to the PAUs and removing the cost of complications from the PAU definitions. The need for greater reductions of PAUs requires focus on opportunities for improvement beyond readmissions, including reductions in admissions for ambulatory care-sensitive conditions (measured using prevention quality indicators (PQIs)), and for sepsis. Figure 4 provides summary statewide statistics on PAUs for All-Payer and Medicare patients. PAUs comprise 15 percent of the total hospital revenue for all-payer and 22 percent for Medicare patients. While we have 5.6 percent reduction in readmissions, PQIs declined by 0.8 percent, and sepsis admissions increased by 14 percent between CY 2013 and CY2015. If Maryland increases the prospective adjustment for these PAUs, we may moderate the maximum penalty under the RRIP program.

Figure 4. Potentially Avoidable Utilization Summary, All-Payer and Medicare

All Payer

	Total Charge CY15	ECMAD CY15	ECMAD CY13	% ECMAD Change CY13-CY15	% Grand Total Charge
Readmission	$1,288,435,419	90,260	95,614	-5.6%	8.0%
PQI	$651,465,870	51,679	52,100	-0.8%	4.1%
Sepsis	$516,098,092	39,131	34,251	14.2%	3.2%
PAU Total	**$2,455,999,381**	**181,069**	**181,966**	**-0.5%**	**15.3%**
Grand Total	**16,073,397,565**	**1,155,421**	**1,161,441**	**-0.5%**	**100%**

	Total Charge CY15	PPC Count CY15	PPC Count CY 13	% PPC Count Change CY13-CY15	% Grand Total Charge
PPCs/MHACs	$231,919,620	21,026	29,740	-29.30%	1.4%

PAUs are based on Inpatient and 23+ hour observation cases. Annualized based on Jan-Sept Final Data

MEDICARE						
	Total Charge CY15	**ECMAD CY15**	**ECMAD CY13**	**% ECMAD Change CY13-CY15**	**% Grand Total Charge**	**% Medicare**
Readmission	$680,347,206	50,068	52,034	-3.8%	11.2%	53%
PQI	$391,016,430	30,914	29,969	3.2%	6.4%	60%
Sepsis	$288,257,794	22,887	20,013	14.4%	4.7%	56%
PAU Total	**$1,359,621,430**	**103,868**	**102,016**	**1.8%**	**22.4%**	**55%**
Grand Total	**$6,079,614,526**	**447,172**	**440,416**	**1.5%**	**100.0%**	**38%**
	Total Charge CY15	**ECMAD CY15**	**ECMAD CY13**	**% PPC Count Change CY13-CY15**	**% Grand Total Charge**	**% Medicare**
PPCs/MHACs	$129,912,439	11,143	15,370	-27.5%	2.1%	56%

PAUs are based on Inpatient and 23+ hour observation cases. Annualized based on Jan-Sept Final Data

Considerations for the RY 2017 RRIP Policy

One of the guiding principles for Maryland's hospital quality programs is to set the policy and benchmarks ahead of the performance periods. Last year, the Commission made an exception to allow for staff to examine the developing policy results during the performance period in light of some potential payment equity issues. In approving a policy that set improvement targets equally for all hospitals, there were concerns that individual hospitals might be penalized even though they were performing relatively well. For example, if the initial readmission rate for a hospital was relatively low, it may be harder to reduce the same percentage of readmissions as other hospitals with higher initial rates. Staff is considering the options below for moderating adjustments in light of recent analysis.

- Recognize improvement in the Medicare readmission rates. Even though statewide numbers do not warrant a change in the overall measurement approach from the use of all-payer to Medicare-specific benchmarks, hospital-level performance may vary. We could recognize

faster improvement in Medicare readmission rates if a hospital reduces its Medicare readmission rates faster than the all-payer readmission rates (Appendix X).

- Adjust the all-payer readmission target for hospitals whose readmission rates are lower than the statewide average as proposed for the RY 2018 policy.

- The Maryland Hospital Association is proposing to reduce the RY 2017 target to the statewide average reduction rate, (current trend is at 7 percent decline), and remove all of the penalties if a hospital's readmission rate was in the lowest quintile in both CY 2013 and CY 2015. Staff does not agree with changing the overall target.

Given Maryland's high rate of readmissions, staff believe that all hospitals should aim to reduce readmissions, albeit there could be diminishing opportunity for reductions if the base year readmission rates are lower. Staff also believe the principle of setting benchmarks and targets ahead of the performance period should be maintained. Staff will work with the Performance Measurement Workgroup to evaluate these alternatives and finalize the recommendation based on our analysis and the input from the stakeholders and the Commissioners.

RECOMMENDATION

Based on this assessment, HSCRC staff recommend the following updates to the RRIP program for RY 2018:

1. The reduction target should continue to be set for all-payers.

2. The all-payer reduction target should be set at 9.5 percent.

3. The reduction target should be adjusted downward for hospitals whose readmission rates are below the statewide average.

APPENDIX I. HSCRC METHODOLOGY FOR READMISSIONS FOR RATE YEAR 2018

1) Performance Metric

The methodology for the Readmissions Reduction Incentive Program (RRIP) measures performance using the 30-day all-payer all hospital (both intra and inter hospital) readmission rate with adjustments for patient severity (based upon discharge all-patient refined diagnosis-related group severity of illness [APR-DRG SOI]) and planned admissions.

The measure is very similar to the readmission rate that will be calculated for the new All-Payer Model with a few exceptions. For comparing Maryland's Medicare readmission rate to the national readmission rate, the Center for Medicare and Medicaid Innovation (CMMI) will calculate an unadjusted readmission rate for Medicare beneficiaries. Since the Health Services Cost Review Commission (HSCRC) measure is for hospital-specific payment purposes, adjustments had to be made to the metric that accounted for planned admissions and severity of illness. See below for details on the readmission calculation for the program.

2) Adjustments to Readmission Measurement

The following discharges are removed from the numerator and/or denominator for the readmission rate calculations:

- Planned readmissions are excluded from the numerator based upon the CMS Planned Readmission Algorithm V. 3.0. The HSCRC has also added all vaginal and C-section deliveries as planned using the APR-DRGs rather than principal diagnosis (APR-DRGs 540, 541, 542, 560). Planned admissions are counted in the denominator because they could have an unplanned readmission.
- Discharges for newborn APR-DRG are removed.
- Admissions with ungrouable APR-DRGs (955, 956) are not eligible for a readmission but can be a readmission for a previous admission.
- Hospitalizations within 30 days of a hospital discharge where a patient dies is counted as a readmission, however the readmission is removed from the denominator because there cannot be a subsequent readmission.
- Admissions that result in transfers, defined as cases where the discharge date of the admission is on the same or next day as the admission date of the subsequent admission, are removed from the denominator counts. Thus, only one admission is counted in the denominator and that is the admission to the transfer hospital. It is this discharge date that is used to calculate the 30-day readmission window.
- Discharges from rehabilitation hospitals (provider ids Chesapeake Rehab 213028, Adventist Rehab 213029, Bowie Health 210333).
- Holy Cross Germantown is excluded from the program until they have one full year of base period data; Levindale is included in the program; and chronic beds within acute care hospitals are excluded for this year but will be included in future years.

- In addition, the following data cleaning edits are applied:

    a. Cases with null or missing Chesapeake Regional Information System unique patient identifiers (CRISP EIDs)
    b. Duplicates
    c. Negative interval days
    d. HSCRC staff is revising case mix data edits to prevent submission of duplicates and negative intervals, which are very rare. In addition, CRISP EID matching benchmarks are closely monitored. Currently, 99 percent of inpatient discharges have a CRISP EID.

3) Details on the Calculation of Case-Mix Adjusted Readmission Rate

Data Source:

To calculate readmission rates for the RRIP, the inpatient abstract/case mix data with CRISP EIDs (so that patients can be tracked across hospitals) is used for the measurement period plus an extra 30 days. To calculate the case mix adjusted readmission rate for the CY 2013 base period and the CY 2016 performance period, data from January 1 through December 31, plus 30 days in January of the next year would be used.

SOFTWARE: APR-DRG Version 32

Calculation:

$$\text{Risk-Adjusted Readmission Rate} = \frac{\text{(Observed Readmissions)}}{\text{(Expected Readmissions)}} \times \text{Statewide Readmission Rate}$$

Numerator: Number of observed hospital specific unplanned readmissions.

Denominator: Number of expected hospital specific unplanned readmissions based upon discharge APR-DRG and Severity of Illness. See below for how to calculate expected readmissions adjusted for APR-DRG SOI.

Risk Adjustment Calculation:

- Calculate the Statewide Readmission Rate without Planned Readmissions.
    o Statewide Readmission Rate = Total number of readmissions with exclusions removed / Total number of hospital discharges with exclusions removed.
- For each hospital, calculate the number of observed unplanned readmissions.

- For each hospital, calculate the number of expected unplanned readmissions based upon discharge APR-DRG SOI (see below for description). For each hospital, cases are removed if the discharge APR-DRG and SOI cells have less than two total cases in the base period data (CY 2013).
- Calculate the ratio of observed (O) readmissions over expected (E) readmissions. A ratio of > 1 means that there were more observed readmissions than expected based upon that hospital's case mix. A ratio < 1 means that there were fewer observed readmissions than expected based upon that hospital's case mix.
- Multiply O/E ratio by the statewide rate to get risk-adjusted readmission rate by hospital.

Expected Values:

The expected value of readmissions is the number of readmissions a hospital, given its mix of patients as defined by discharge APR DRG category and SOI level, would have experienced had its rate of readmissions been identical to that experienced by a reference or normative set of hospitals. Currently, HSCRC is using state average rates as the benchmark.

The technique by which the expected value or expected number of readmissions is calculated is called indirect standardization. For illustrative purposes, assume that every discharge can meet the criteria for having a readmission, a condition called being "at risk" for a readmission. All discharges will either have no readmissions or will have one readmission. The readmission rate is the proportion or percent of admissions that have a readmission.

The rates of readmissions in the normative database are calculated for each APR DRG category and its SOI levels by dividing the observed number of readmissions by the total number of discharges. The readmission norm for a single APR DRG SOI level is calculated as follows:

Let:

N = norm
P = Number of discharges with a readmission
D = Number of discharges that can potentially have a readmission
i = An APR DRG category and a single SOI level

$$N_i = \frac{P_i}{D_i}$$

For this example, this number is displayed as readmissions per discharge to facilitate the calculations in the example. Most reports will display this number as a rate per one thousand.

Once a set of norms has been calculated, they can be applied to each hospital. For this example, the computation is for an individual APR DRG category and its SOI levels. This computation

could be expanded to include multiple APR DRG categories or any other subset of data, by simply expanding the summations.

Consider the following example for an individual APR DRG category.

Appendix I. Figure 1. Expected Value Computation Example

1 Severity of Illness Level	2 Discharges at Risk for Readmission	3 Discharges with Readmission	4 Readmissions per Discharge	5 Normative Readmissions per Discharge	6 Expected # of Readmissions
1	200	10	.05	.07	14.0
2	150	15	.10	.10	15.0
3	100	10	.10	.15	15.0
4	50	10	.20	.25	12.5
Total	**500**	**45**	**.09**		**56.5**

For the APR DRG category, the number of discharges with readmission is 45, which is the sum of discharges with readmissions (column 3). The overall rate of readmissions per discharge, 0.09, is calculated by dividing the total number of discharges with a readmission (sum of column 3) by the total number of discharges at risk for readmission (sum of column 2), i.e., 0.09 = 45/500. From the normative population, the proportion of discharges with readmissions for each SOI level for that APR DRG category is displayed in column 5. The expected number of readmissions for each SOI level shown in column 6 is calculated by multiplying the number of discharges at risk for a readmission (column 2) by the normative readmissions per discharge rate (column 5) The total number of readmissions expected for this APR DRG category is the expected number of readmissions for the SOI.

In this example, the expected number of readmissions for this APR DRG category is 56.5, compared to the actual number of discharges with readmissions of 45. Thus, the hospital had 11.5 fewer actual discharges with readmissions than were expected for this APR DRG category. This difference can be expressed as a percentage difference as well.

APR DRG by SOI categories are excluded from the computation of the actual and expected rates when there are only zero or one at risk admission statewide for the associated APR DRG by SOI category.

APPENDIX II. ALL-PAYER HOSPITAL-LEVEL READMISSION RATES

The following figure presents the change in all-payer case-mix adjusted readmissions by hospital between CY 2013 and the data available through October of CY 2015.

Appendix II. Figure 1. Case-Mix Adjusted All-Payer Readmission Rate Change, CY 2015 2013, by Hospital
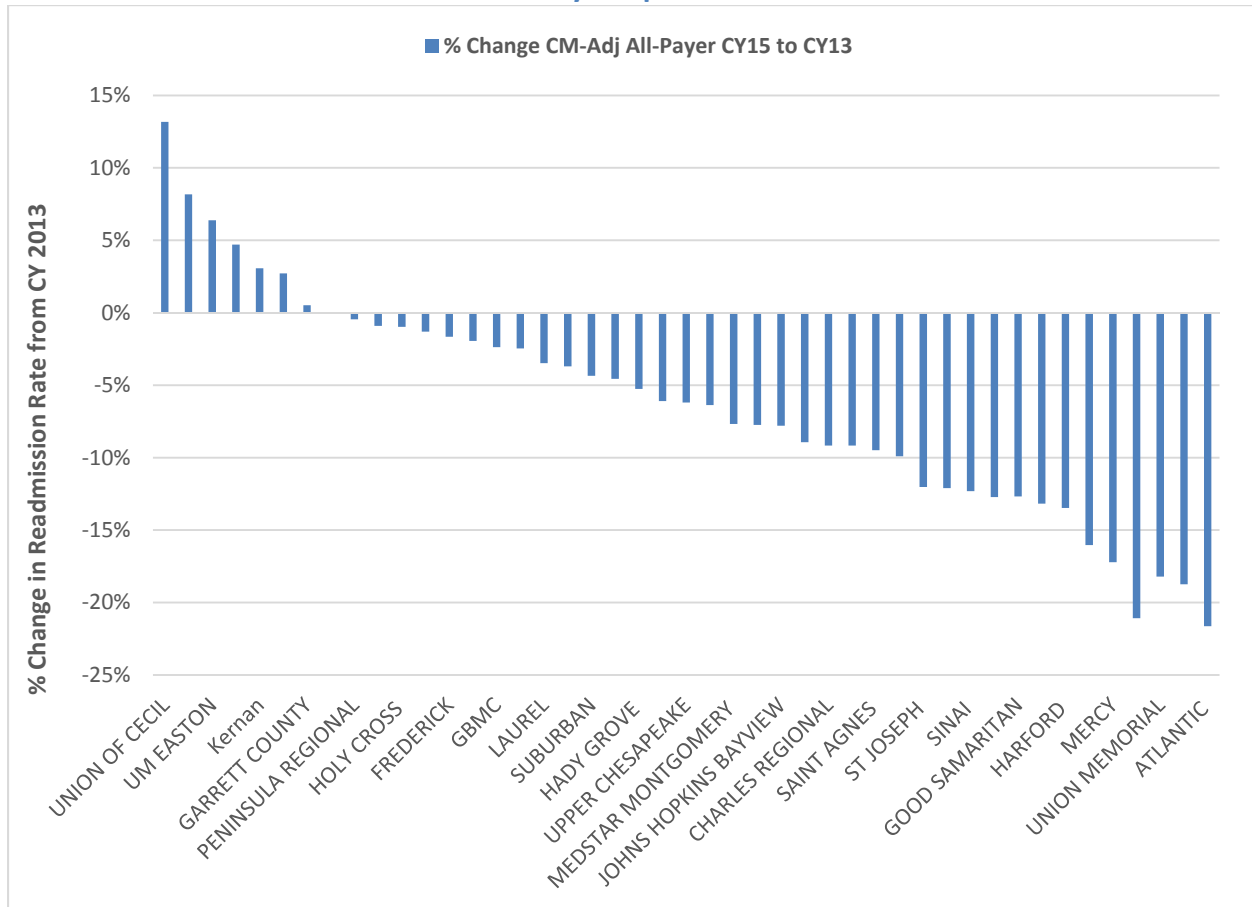
APPENDIX III. ALL-PAYER AND MEDICARE READMISSION RATES

The following figure shows the relationship between changes in all-payer and Medicare readmission rates between CY 2013 and the data available through October of 2015. The x-axis shows the percent change in the Medicare readmission rate, and the y-axis shows the percent change in the all-payer readmission rate. Each blue dot represents one of the hospitals. The data show a strong correlation between the changes in all-payer and Medicare readmission rates.

Appendix III. Figure 1. Change in All-Payer vs. Medicare Readmission Rates, CY 2015-2013, by Hospital
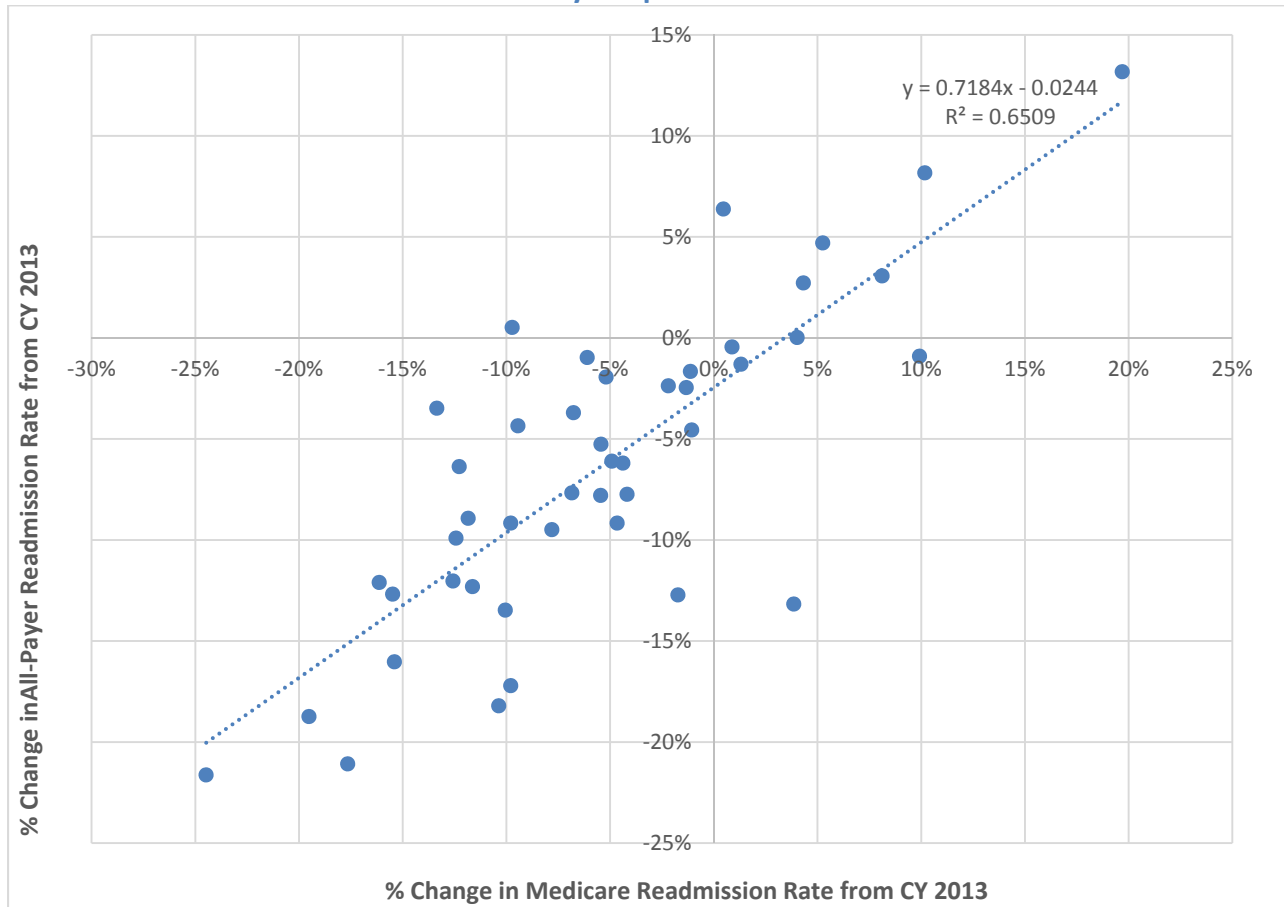
APPENDIX IV. ALL-PAYER ELIGIBLE DISCHARGES AND READMISSION RATES

The following figure shows the relationship between all-payer eligible discharges (x-axis) and the percent change in the all-payer readmission rate (y-axis). Each blue dot represents one of the hospitals. The data show a correlation between the rate of discharges and the rate of readmissions.

Appendix IV. Figure 1. Change in All-Payer Eligible Discharges vs. Readmission Rates, CY 2015-2013, by Hospital
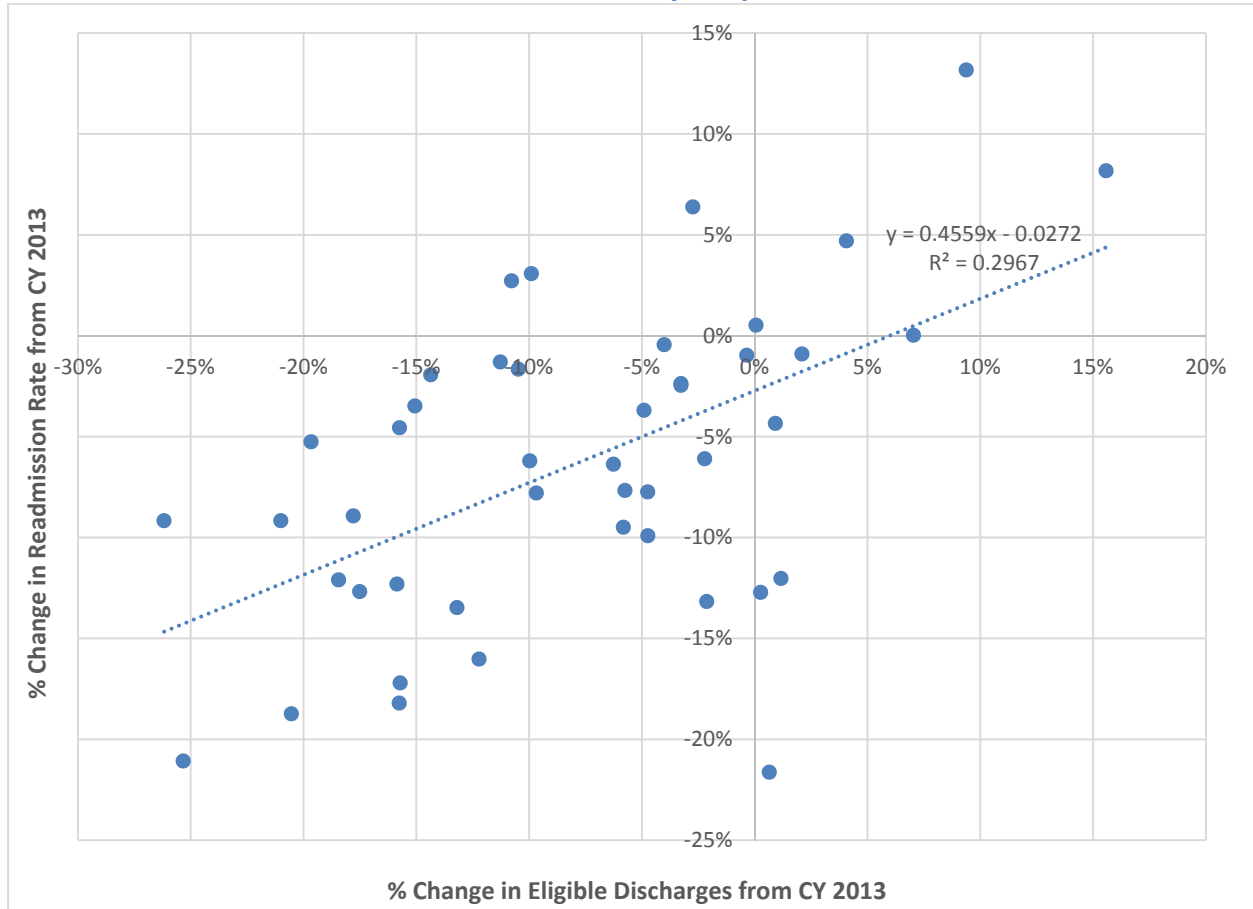
APPENDIX V. AREA DEPRIVATION INDEX ANALYSES

The following figures show analyses of the relationship between the Area Deprivation Index (ADI) and readmissions. The ADI is a neighbor block-group measure of socio-economic and demographic factors based on 17 census-based indicators assessing education, income, poverty, housing costs, housing quality, employment, and single parent households. Figure 1 shows the relationship between hospitals in the most deprived areas (x-axis) and readmissions (y-axis). Each blue dot represents one of the hospitals. The data show that hospitals with a higher proportion of patients from deprived areas have higher readmission rates than hospitals with a lower proportion of patients from deprived areas. However, this relationship is not as strong when the two outlier hospitals are excluded (see Figure 2).

Appendix V. Figure 1. Percentage of All-Payer Patient Populations with >=85th ADI Percentile vs. Readmission Rate CY 2015, by Hospital
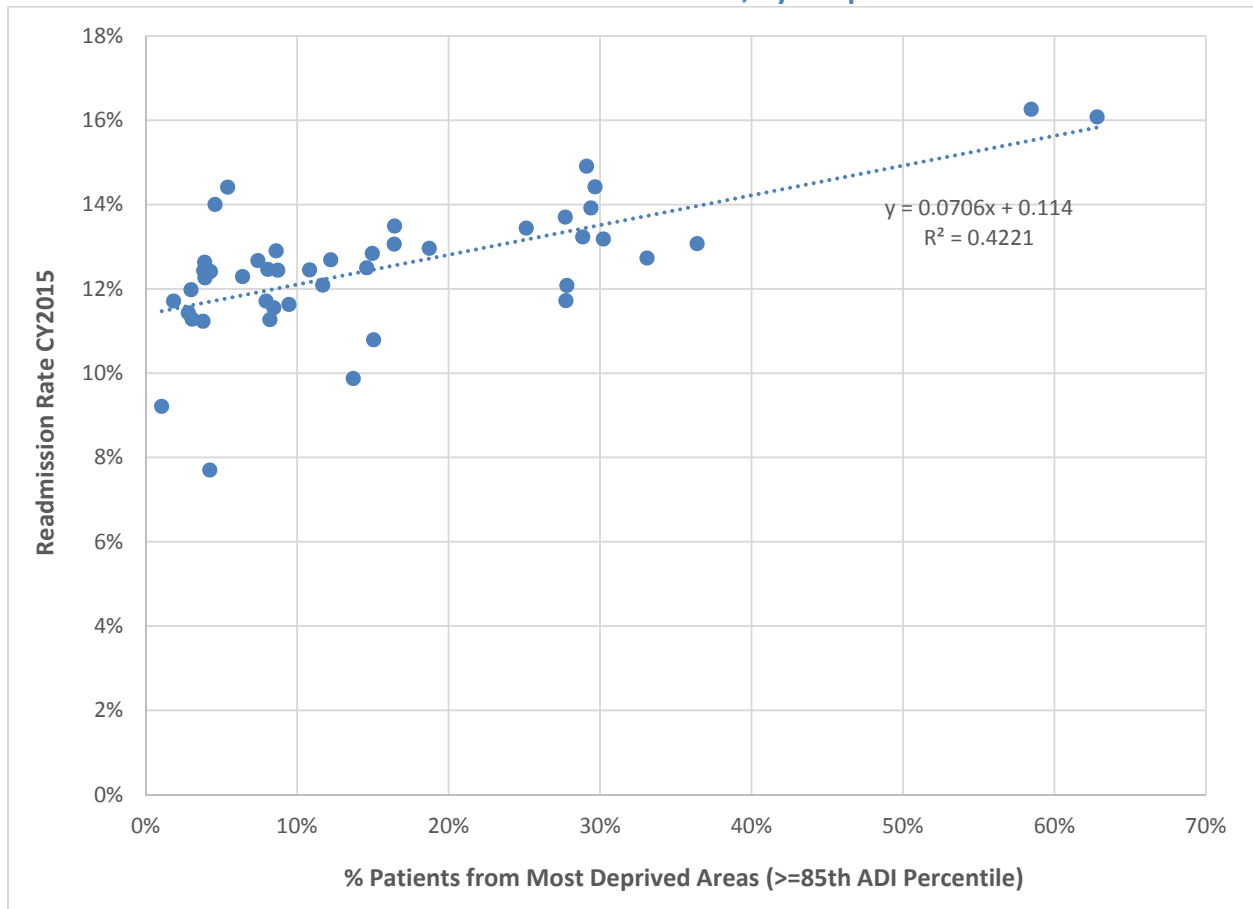
Figure 2 presents the same data as Figure 1, but excludes the two outlier hospitals. As noted above, the relationship between ADI and readmissions diminishes when these outliers are excluded.

Appendix V. Figure 2. Percentage of All-Payer Patient Populations with >=85th ADI Percentile vs. Readmission Rate CY 2015, by Hospital[10]

$y = 0.0607x + 0.1151$
$R^2 = 0.2222$

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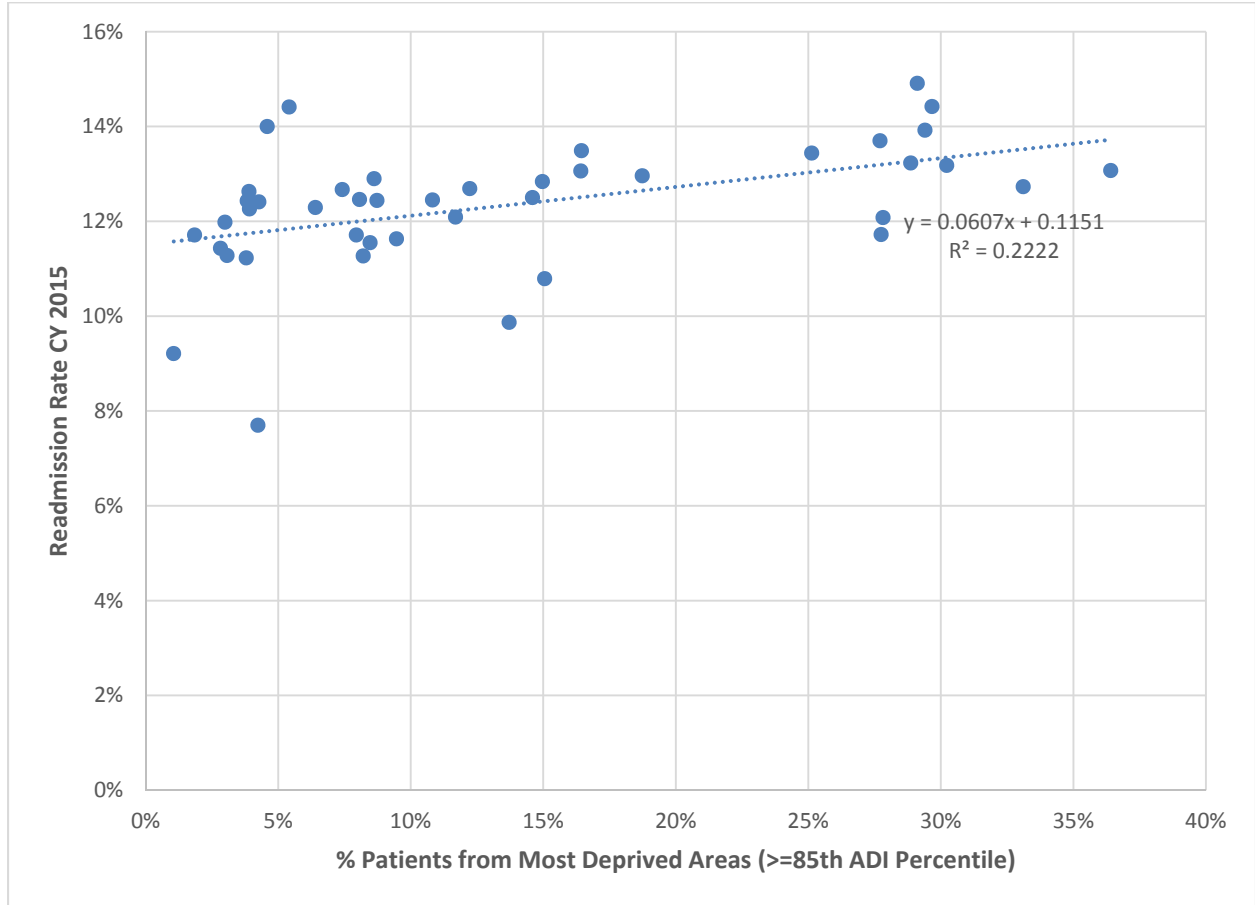
[10] Two outlier data points from Bon Secours and University of Maryland Hospitals are removed from this figure.

The following figure shows the relationship between hospitals in the most deprived areas (x-axis) and the *change* in readmission rates (y-axis). The data do not show a correlation between ADI and the change in readmission rates and do not support the assumption that hospitals with higher deprivation burden have lower improvement rates.

Appendix V. Figure 3. Percentage of All-Payer Patient Populations with >=85th ADI Percentile vs. Change in Readmission Rate from CY 2013, by Hospital
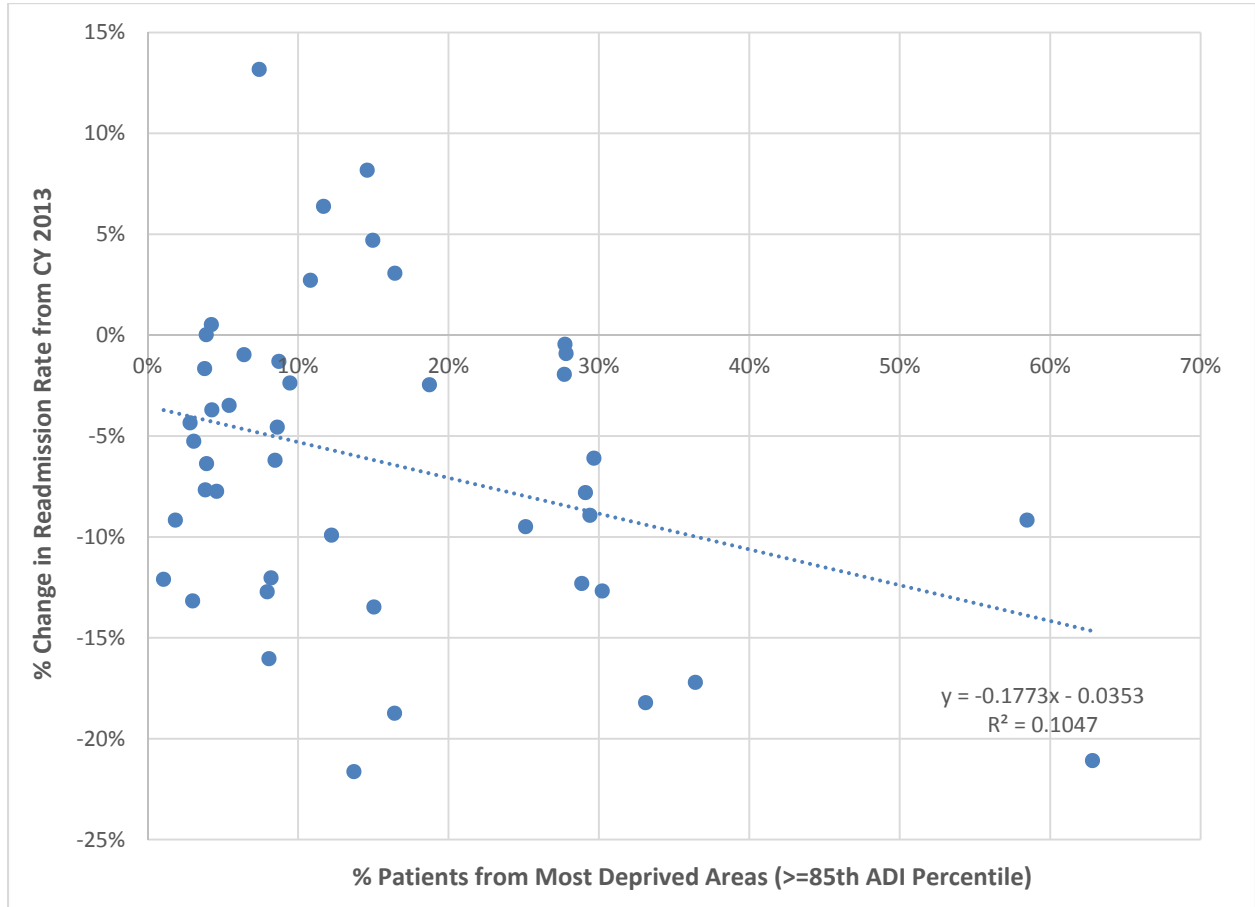
APPENDIX VI. CHANGE IN READMISSION RATES INCLUDING OBSERVATION ROOMS

Stakeholders and HSCRC staff expressed concern that observation room stays can be substituted for readmissions. The following figure shows the relationship between the change in readmission rates that include observation room stays in the count of readmissions (x-axis) and the change in readmission rates that exclude observation room stays from the count of readmissions (y-axis). Each blue dot represents one hospital. The data show that the decline in the readmission rate that counts observation room stays is slightly less than the decline in the readmission rate that does not count observation room stays.

Appendix VI. Figure 1. Change in All-Payer Readmission Rates vs. Change in Readmission Rate Including Observations Stays from CY 2015-2013, by Hospital

APPENDIX VII. CMS HOSPITAL-WIDE MEDICARE READMISSIONS

The following figure shows the Centers for Medicare & Medicaid Services (CMS) readmission measures for each Maryland hospital.

Appendix VII. Figure 1. Medicare Readmission Rates, July 1, 2011-June 30, 2014

	Hospital Wide Rate	AMI	HF	Pneumonia	Hip/Knee	Unplanned CABG	Unplanned COPD	Unplanned Stroke
FREDERICK MEMORIAL HOSPITAL*	**13.8%**	16.5%	20.7%	16.8%	5.8%	0.0%	20.4%	11.5%
GREATER BALTIMORE MEDICAL CENTER*	**14.0%**	16.4%	19.8%	15.5%	4.9%	0.0%	17.6%	11.1%
MEDSTAR UNION MEMORIAL HOSPITAL	**14.1%**	15.7%	19.3%	16.4%	3.9%	13.3%	18.3%	11.9%
GARRETT COUNTY MEMORIAL HOSPITAL	**14.2%**	16.9%	22.2%	15.8%	4.1%	0.0%	19.7%	12.3%
ADVENTIST HEALTHCARE WASHINGTON ADVENTIST HOSPITAL	**14.4%**	16.4%	24.0%	17.1%	4.8%	13.8%	19.7%	13.2%
UNIVERSITY OF MARYLAND ST JOSEPH MEDICAL CENTER	**14.4%**	17.0%	20.0%	17.4%	4.2%	14.7%	18.3%	12.0%
CALVERT MEMORIAL HOSPITAL	**14.5%**	16.1%	21.8%	19.0%	6.5%	0.0%	18.2%	12.7%
UNIVERSITY OF MD SHORE MEDICAL CENTER AT EASTON	**14.5%**	17.5%	21.3%	18.1%	4.6%	0.0%	19.6%	11.9%
ANNE ARUNDEL MEDICAL CENTER	**14.7%**	17.9%	23.1%	17.5%	4.8%	0.0%	20.2%	13.6%
PENINSULA REGIONAL MEDICAL CENTER	**14.8%**	15.2%	20.6%	16.9%	5.0%	14.4%	16.7%	13.0%
SUBURBAN HOSPITAL	**14.8%**	15.9%	21.3%	17.0%	4.0%	13.9%	20.7%	13.6%
MEDSTAR HARBOR HOSPITAL	**14.9%**	17.5%	23.2%	15.5%	6.0%	0.0%	19.9%	12.9%
ADVENTIST HEALTHCARE SHADY GROVE MEDICAL CENTER	**15.0%**	16.6%	23.1%	17.4%	6.1%	0.0%	20.8%	13.5%
MERITUS MEDICAL CENTER	**15.0%**	15.6%	23.2%	17.2%	3.8%	0.0%	21.2%	12.9%
HOLY CROSS HOSPITAL	**15.1%**	18.4%	22.6%	16.8%	4.8%	0.0%	20.6%	13.4%
LEVINDALE HEBREW GERIATRIC CENTER AND HOSPITAL	**15.1%**	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
UNION HOSPITAL OF CECIL COUNTY	**15.1%**	17.9%	22.0%	16.0%	5.0%	0.0%	19.2%	12.2%
EDWARD MCCREADY MEMORIAL HOSPITAL	**15.2%**	0.0%	21.4%	17.7%	0.0%	0.0%	19.0%	0.0%

	Hospital Wide Rate	AMI	HF	Pneumonia	Hip/Knee	Unplanned CABG	Unplanned COPD	Unplanned Stroke
UNIVERSITY OF MARYLAND HARFORD MEMORIAL HOSPITAL	**15.2%**	16.6%	20.4%	18.1%	4.8%	0.0%	20.5%	13.2%
UNIVERSITY OF M D UPPER CHESAPEAKE MEDICAL CENTER	**15.3%**	17.2%	21.2%	16.9%	5.5%	0.0%	20.4%	12.1%
CARROLL HOSPITAL CENTER	**15.4%**	14.7%	21.1%	17.3%	4.2%	0.0%	19.1%	12.9%
SAINT AGNES HOSPITAL	**15.4%**	16.1%	23.0%	17.2%	6.9%	0.0%	19.3%	16.6%
MEDSTAR FRANKLIN SQUARE MEDICAL CENTER	**15.5%**	17.1%	20.9%	16.4%	6.2%	0.0%	20.1%	12.1%
UNIVERSITY OF MD SHORE MEDICAL CTR AT CHESTERTOWN	**15.5%**	17.3%	21.3%	16.2%	5.2%	0.0%	21.3%	12.1%
MEDSTAR SAINT MARY'S HOSPITAL	**15.6%**	16.2%	24.5%	15.7%	5.1%	0.0%	20.8%	14.2%
WESTERN MARYLAND REGIONAL MEDICAL CENTER	**15.6%**	16.1%	22.3%	17.6%	4.8%	12.7%	19.1%	13.9%
ATLANTIC GENERAL HOSPITAL	**15.7%**	18.4%	22.1%	18.1%	5.5%	0.0%	19.8%	13.5%
UNIVERSITY OF MD CHARLES REGIONAL MEDICAL CENTER	**15.8%**	0.0%	22.4%	17.1%	6.3%	0.0%	20.4%	12.6%
MEDSTAR GOOD SAMARITAN HOSPITAL	**15.9%**	18.2%	22.9%	20.4%	5.5%	0.0%	20.6%	11.8%
SINAI HOSPITAL OF BALTIMORE	**15.9%**	16.8%	22.6%	18.5%	6.1%	14.9%	20.8%	15.4%
PRINCE GEORGES HOSPITAL CENTER	**16.0%**	17.7%	24.4%	17.4%	0.0%	0.0%	21.7%	13.9%
BON SECOURS HOSPITAL	**16.1%**	0.0%	22.8%	17.1%	0.0%	0.0%	20.4%	13.3%
DOCTORS' COMMUNITY HOSPITAL	**16.1%**	16.6%	21.9%	19.4%	5.3%	0.0%	19.2%	12.8%
LAUREL REGIONAL MEDICAL CENTER	**16.2%**	18.1%	23.0%	18.8%	5.7%	0.0%	20.4%	14.0%
UNIVERSITY OF MD BALTO WASHINGTON MEDICAL CENTER	**16.4%**	15.7%	25.8%	20.2%	5.1%	0.0%	20.8%	13.2%
MERCY MEDICAL CENTER INC	**16.5%**	18.2%	23.8%	17.9%	5.2%	0.0%	20.4%	15.3%
NORTHWEST HOSPITAL CENTER	**16.6%**	18.5%	26.3%	20.8%	4.9%	0.0%	22.7%	13.9%
HOWARD COUNTY GENERAL HOSPITAL	**16.8%**	17.2%	25.2%	18.9%	4.6%	0.0%	20.9%	12.0%
MEDSTAR MONTGOMERY MEDICAL CENTER	**16.8%**	17.2%	23.8%	19.0%	5.9%	0.0%	22.6%	14.9%
MEDSTAR SOUTHERN MARYLAND HOSPITAL	**16.9%**	18.1%	22.7%	16.1%	4.9%	0.0%	21.1%	15.4%

	Hospital Wide Rate	AMI	HF	Pneumonia	Hip/Knee	Unplanned CABG	Unplanned COPD	Unplanned Stroke
CENTER								
UNIVERSITY OF MARYLAND MEDICAL CENTER	**17.0%**	17.9%	25.1%	18.9%	4.8%	15.6%	19.8%	13.0%
FORT WASHINGTON HOSPITAL	**17.1%**	0.0%	24.8%	15.8%	5.1%	0.0%	24.2%	13.7%
UNIVERSITY OF MD MEDICAL CENTER MIDTOWN CAMPUS	**17.6%**	0.0%	23.2%	17.6%	0.0%	0.0%	22.1%	13.0%
JOHNS HOPKINS HOSPITAL, THE	**17.8%**	18.8%	21.7%	17.9%	0.0%	15.5%	20.4%	14.5%
JOHNS HOPKINS BAYVIEW MEDICAL CENTER	**17.9%**	17.6%	25.0%	19.0%	5.6%	0.0%	22.8%	14.7%
National Average	**15.2%**	**17.0%**	**22.0%**	**16.9%**	**4.8%**	**14.9%**	**20.2%**	**12.7%**

*Statistically lower readmission rate than national average

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APPENDIX VIII. CHANGE IN THE ALL-PAYER READMISSION RATE SINCE CY 2013

The following figure shows the relationship between the CY 2013 base year readmission rate (x-axis) and the change in the readmission rate between CY 2013 and October of CY 2015 (y-axis). Each blue dot represents one hospital. The data show a relationship between a hospital's base year readmission rate and the rate of change through October of CY 2015.

Appendix VIII. Figure 1. Change in All-Payer Readmission Rates from CY 2015-2013 vs. CY 2013, by Hospital
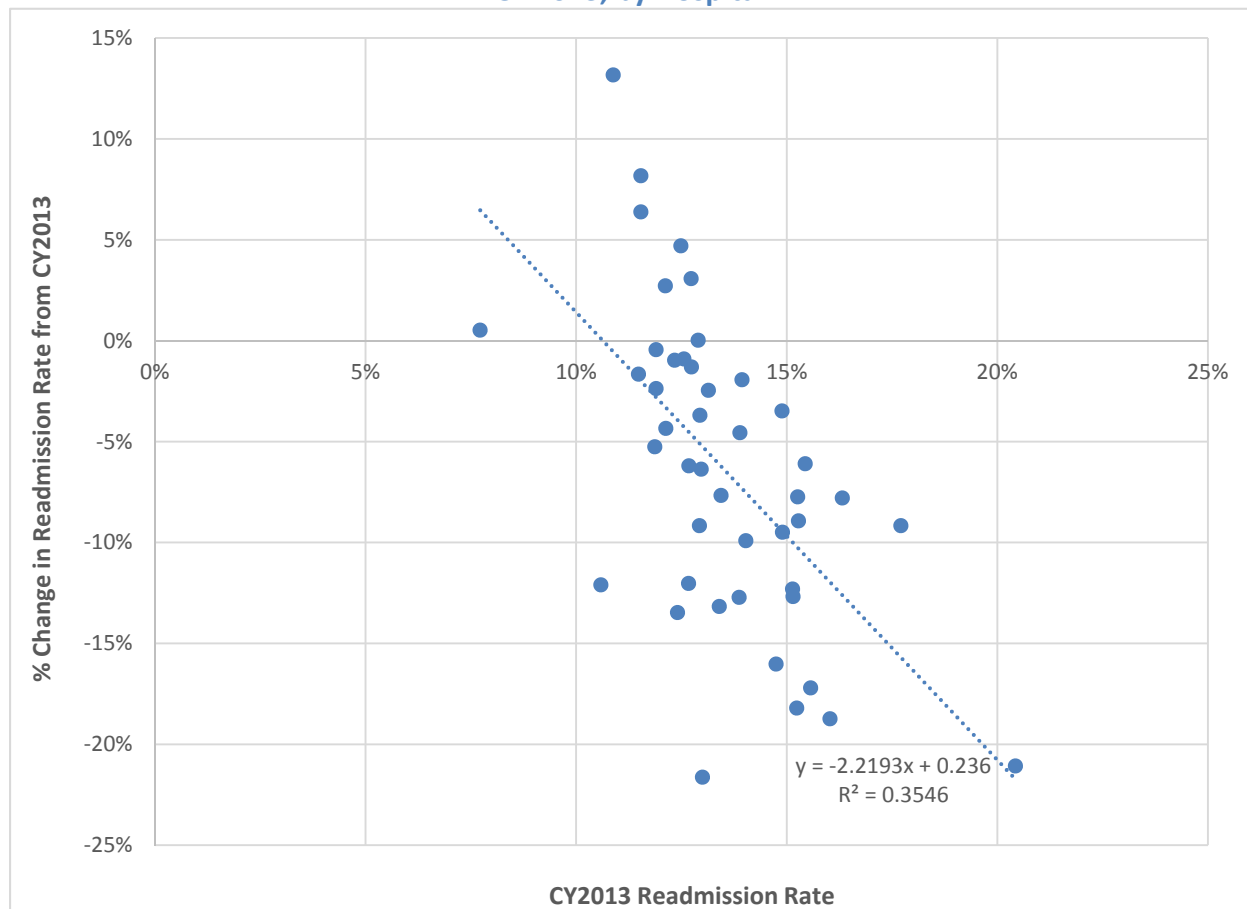
APPENDIX IX. CY 2016 READMISSION TARGET RATES

The following figure compares the CY 2013 readmission rate for each hospital with the statewide average. The first column displays the hospital's name. The second column shows the hospital's actual readmission rate for CY 2013. The third column shows the statewide average readmission rate for CY 2013. The fourth column shows the difference between each hospital's CY 2013 readmission rate and the statewide average. The fifth column shows each hospital's readmission reduction target for CY 2016, and the sixth column shows each hospital's target readmission rate for CY 2016. The seventh column shows each hospital's actual change in readmission rate for CY 15 compared with CY 13.

Appendix IX. Figure 1. CY 2013 Readmission Rates, and CY 2016 Target Readmission Rates, by Hospital

1. HOSPITAL NAME	2. CY13 YTD RISK- Adjusted Rate	3. Average State Readmission Rate	4. Difference from State Average	5. Adjusted Target Reduction	6. CY16 Target Readmission Rate	7. % Change in Readmission Rate CY 15 vs CY13 YTD
GARRETT COUNTY	7.66%	13.84%	-6.18%	-1.00%	7.58%	0.5%
CALVERT	10.48%	13.84%	-3.36%	-4.34%	10.03%	-12.1%
UNION HOSPITAL OF CECIL COUNT	11.19%	13.84%	-2.65%	-5.18%	10.61%	13.2%
EASTON	11.36%	13.84%	-2.48%	-5.38%	10.75%	6.4%
FREDERICK MEMORIAL	11.42%	13.84%	-2.42%	-5.45%	10.80%	-1.7%
PRINCE GEORGE	11.55%	13.84%	-2.29%	-5.61%	10.90%	8.2%
PENINSULA REGIONAL	11.77%	13.84%	-2.07%	-5.87%	11.08%	-0.4%
SHADY GROVE	11.91%	13.84%	-1.93%	-6.03%	11.19%	-5.3%
G.B.M.C.	11.91%	13.84%	-1.93%	-6.03%	11.19%	-2.4%
SUBURBAN	11.95%	13.84%	-1.89%	-6.08%	11.22%	-4.4%
WASHINGTON ADVENTIST	12.12%	13.84%	-1.72%	-6.28%	11.36%	2.7%
DORCHESTER	12.19%	13.84%	-1.65%	-6.36%	11.41%	-0.9%
MERITUS	12.27%	13.84%	-1.57%	-6.46%	11.10%	4.6%

1. HOSPITAL NAME	2. CY13 YTD RISK- Adjusted Rate	3. Average State Readmission Rate	4. Difference from State Average	5. Adjusted Target Reduction	6. CY16 Target Readmission Rate	7. % Change in Readmission Rate CY 15 vs CY13 YTD
UPPER CHESAPEAKE HEALTH	12.31%	13.84%	-1.53%	-6.50%	11.51%	-6.2%
HOLY CROSS	12.41%	13.84%	-1.43%	-6.62%	11.59%	-1.0%
HARFORD	12.47%	13.84%	-1.37%	-6.69%	11.64%	-13.5%
ATLANTIC GENERAL	12.59%	13.84%	-1.25%	-6.84%	11.73%	-21.6%
SOUTHERN MARYLAND	12.61%	13.84%	-1.23%	-6.86%	11.74%	-1.3%
HOWARD COUNTY	12.62%	13.84%	-1.22%	-6.87%	11.75%	0.1%
UM ST. JOSEPH	12.81%	13.84%	-1.03%	-7.10%	11.90%	-12.0%
CHARLES REGIONAL	12.89%	13.84%	-0.95%	-7.19%	11.96%	-9.2%
CARROLL COUNTY	12.89%	13.84%	-0.95%	-7.19%	11.96%	-3.7%
REHAB & ORTHO	13.08%	13.84%	-0.76%	-7.42%	12.11%	3.1%
ANNE ARUNDEL	13.09%	13.84%	-0.75%	-7.43%	12.12%	-6.3%
WESTERN MARYLAND HEALTH SYSTEM	13.29%	13.84%	-0.55%	-7.67%	12.27%	-2.5%
FT. WASHINGTON	13.41%	13.84%	-0.43%	-7.81%	12.36%	-12.7%
MONTGOMERY GENERAL	13.47%	13.84%	-0.37%	-7.88%	12.41%	-7.7%
DOCTORS COMMUNITY	13.52%	13.84%	-0.32%	-7.94%	12.45%	-4.6%
MCCREADY	13.58%	13.84%	-0.26%	-8.01%	12.49%	-47.6%
ST. MARY	13.80%	13.84%	-0.04%	-8.27%	12.66%	-13.2%
HARBOR	13.97%	13.84%	0.13%	-9.50%	12.64%	-1.9%
FRANKLIN SQUARE	14.09%	13.84%	0.25%	-9.50%	12.75%	-9.9%
CHESTERTOWN	14.84%	13.84%	1.00%	-9.50%	13.43%	-16.0%
ST. AGNES	14.85%	13.84%	1.01%	-9.50%	13.44%	-9.5%
LAUREL REGIONAL	14.92%	13.84%	1.08%	-9.50%	13.50%	-3.4%

1. HOSPITAL NAME	2. CY13 YTD RISK- Adjusted Rate	3. Average State Readmission Rate	4. Difference from State Average	5. Adjusted Target Reduction	6. CY16 Target Readmission Rate	7. % Change in Readmission Rate CY 15 vs CY13 YTD
SINAI	15.08%	13.84%	1.24%	-9.50%	13.65%	-12.3%
GOOD SAMARITAN	15.10%	13.84%	1.26%	-9.50%	13.67%	-12.7%
BALTIMORE WASHINGTON MEDICAL CENTER	15.18%	13.84%	1.34%	-9.50%	13.74%	-7.8%
UNIVERSITY OF MARYLAND	15.29%	13.84%	1.45%	-9.50%	13.84%	-9.0%
JOHNS HOPKINS	15.36%	13.84%	1.52%	-9.50%	13.90%	-6.1%
UNION MEMORIAL	15.56%	13.84%	1.72%	-9.50%	14.08%	-18.2%
MERCY	15.78%	13.84%	1.94%	-9.50%	14.28%	-17.2%
NORTHWEST	16.07%	13.84%	2.23%	-9.50%	14.54%	-18.7%
HOPKINS BAYVIEW MED CTR	16.17%	13.84%	2.33%	-9.50%	14.63%	-7.8%
UMMC MIDTOWN	17.90%	13.84%	4.06%	-9.50%	16.20%	-9.2%
BON SECOURS	20.37%	13.84%	6.53%	-9.50%	18.43%	-21.1%

APPENDIX X. CHANGE IN ALL-PAYER AND MEDICARE READMISSIONS

The following figure compares the change in case-mix adjusted readmissions for all-payers with the change for Medicare fee-for-service for each hospital. The figure shows the rate of change between CY 2013 and October of CY 2015. In general, all-payer and Medicare trends are similar, but some hospitals show greater improvements for Medicare, while other hospitals show greater improvement for all payers.

Appendix X. Figure 1. Change in Case-Mix Adjusted All-Payer Readmissions from CY 2015-2013 and Change in Adjusted Readmissions for Medicare Fee-for-Service (Inpatient only), by Hospital